AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
J	1 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
0003	06-Aug-2003	W13G86-3162-	

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than item 6)	CODE
DEPT. OF THE ARMY N E DISTRICT, CORPS OF 696 VIRGINIA CONCORD MA 01742-	DACW33	**See Item 6**	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
	X	9A. AMENDMENT OF SOLICITATION NO. DACW33-03-B-0007
	X	9B. DATED (SEE ITEM 11) 11-Jul-2003
		10A. MOD. OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 13)
CODE / FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer [ ] X is extended, [ ] is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:
(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted;
or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE
RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN
REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter,
provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

[ ] A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

[ ] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

[ ] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[ ] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Continued on Page 2.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:	
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY (Signature of Contracting Officer)	16C. DATE SIGNED 06-Aug-2003

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION 00010 - SOLICITATION CONTRACT FORM
The required response date/time has changed from 11-Aug-2003 02:00 PM to 19-Aug-2003 02:00 PM.

(End of Summary of Changes)

The following items are applicable to this modification:
CONTINUATION PAGE
The weight of steel comprising the bridge is verified at 7,234 tons.

1.1 CHANGES TO SPECIFICATIONS

1.1.1 Revised Sections

The section listed below is deleted and replaced with a revised section of the same section number as indicated. Changes in the text are indicated by additions and deletions. Added text is identified by underscoring and deleted text is identified by overstrike.

DELETE SECTION:	REPLACE WITH SECTION (DATED):
Section 09965	Section 09965 08/04/03

END OF AMENDMENT 0003

SECTION TABLE OF CONTENTS

DIVISION 09 - FINISHES

SECTION 09965

SURFACE PREPARATION AND PAINTING THE BOURNE BRIDGE

-- End of Section Table of Contents --

SECTION 09965

SURFACE PREPARATION AND PAINTING THE BOURNE BRIDGE

PART 1 GENERAL

1.1 SUMMARY

The work covered by this section of the specifications consists of preparation of surfaces and application of paint and other specified materials. This work shall be accomplished in complete and strict accordance with the specifications. The work specified in this section includes the removal of lead containing paint from the bridge structure. Workers and the environment will be exposed to lead contaminated debris. Therefore, all worker protection and environment protection requirements specified in this section will be strictly enforced.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z87.1	(1989; Errata; Z87.1a) Occupational and Educational Eye and Face Protection
ANSI Z358.1	(1990) Emergency Eyewash and Shower Equipment

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1186	(1993) Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base
ASTM D 4417	(1993; R 1999) Field Measurement of Surface Profile of Blast Cleaned Steel

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.20	Access to Employee Exposure and Medical Records
29 CFR 1910.94	Ventilation
29 CFR 1910.134	Respiratory Protection
29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1910, Subpart I	Personal Protective Equipment

29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.62	Lead
40 CFR 50, App B	Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere
40 CFR 58, App E	Probe Siting Criteria for Ambient Air Quality Monitoring
40 CFR 60, App A, Mtd 22	Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares
40 CFR 117	Determination of Reportable Quantities for Hazardous Substances
40 CFR 122	EPA Administered Permit Programs: The National Pollutant Discharge Elimination System
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 261, App III	Chemical Analysis Test Methods
40 CFR 261, App II, Mtd 1311	Toxicity Characteristic Leaching Procedure (TCLP)
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 262.22	Number of Copies
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 302	Designation, Reportable Quantities, and Notification
40 CFR 355	Emergency Planning and Notification
49 CFR 171, Subchapter C	Hazardous Materials Regulations

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(1999) National Electrical Code

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH Pub No. 98-119	(1998, 4th Ed., 2nd Supplement) NIOSH Manual of Analytical Methods

THE SOCIETY FOR PROTECTIVE COATINGS (SSPC)

SSPC Guide 6	(1995) Containing Debris Generated During Paint Removal Operations
SSPC QP 1	(1998) Standard Procedure for Evaluating Qualifications of Painting Contractors
SSPC QP 2	(1995) Standard Procedure for Evaluating the Qualifications of Painting Contractors to Remove Hazardous Paint
	Linseed Oil and Alkyd Primer (Without Lead and Chromate Pigments)
SSPC SP 1	(1982) Solvent Cleaning
SSPC SP 2	(1995) Hand Tool Cleaning
SSPC SP 6	(1994) Commercial Blast Cleaning
SSPC SP 7	(1994) Brush-Off Blast Cleaning
SSPC SP 11	(2000) Power Tool Cleaning to Bare Metal

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Accident Prevention Plan; G, RE

The Contractor shall submit an Accident Prevention Plan in accordance with the requirements of Section 01525 SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS. The plan shall include, but is not limited to, each of the topic areas listed in Appendix A therein and the requirements of paragraph SAFETY AND HEALTH PROVISIONS; each topic shall be developed in a concise manner to include management and operational aspects.

Confined Space Procedures; G, RE

The Contractor shall submit detailed written standard operating procedures for confined spaces in accordance with 29 CFR 1910.146 and EM 385-1-1, Section 6I, and as further described in this paragraph.

a. The procedures shall include certificates of calibration for all testing and monitoring equipment. The certificates of calibration shall include: type of equipment, model number, date of calibration, firm conducting calibration, and signature of individual certifying calibration.

b. The procedures shall include methods of inspection of personal protective equipment prior to use.

c. The procedures shall include work practices and other engineering controls designed to reduce airborne hazardous chemical exposures to a minimum.

d. The procedures shall include specification of the design and installation of ventilation systems which shall provide adequate oxygen content and provide for the dilution of paint solvent vapor, lead, and other toxic particulates within the confined space. In addition, the contractor shall include plans to evaluate the adequacy of air flow patterns.

Respiratory Protection Program; G, RE

The Contractor shall submit a comprehensive written respiratory protection program in accordance with 29 CFR 1910.134, 29 CFR 1926.62, and Section 05.E of EM 385-1-1.

Airborne Sampling Plan; G, RE

The contractor shall submit an Airborne Sampling Plan detailing the NIOSH Pub No. 98-119, Factory Mutual, or Underwriters Laboratories approved equipment, equipment calibration procedures, sampling methods, sampling to be performed, and analytical procedures to be used based on the type of work to be performed and anticipated toxic contaminants to be generated. The contractor shall include the name of the accredited laboratory, listed by the American Industrial Hygiene Association (AIHA), to be used to conduct the analysis of any collected air samples.

Ventilation Assessment; G, RE

The contractor shall submit a plan to provide ventilation assessment as required by paragraph PAINT APPLICATION, subparagraph VENTILATION.

Medical Surveillance Plan; G, RE

The Contractor shall submit a Medical Surveillance Plan as required in paragraph MEDICAL STATUS and provide a statement from the examining physician indicating the name of each employee evaluated and any limitations which will preclude the employee from performing the work required. The statement shall include the date of the medical evaluation, the physician's name, signature, and telephone number.

Worker Protection Plan; G, RE

The Contractor shall submit a Worker Protection Plan in accordance with the requirements of 29 CFR 1926.62. The plan shall address all necessary aspects of worker protection and shall include activities emitting lead, means to achieve compliance, alternative technologies considered, air monitoring program, implementation schedule, work practice program, administrative controls, multicontractor site arrangements, and jobsite inspections.

Environmental Compliance Plan; G, RE

The Contractor shall submit an Environmental Compliance Plan. The plan shall incorporate the submittals for Water Quality Plan, Soil Quality Plan, Ambient Air Monitoring Plan, and Visible Emissions Monitoring Plan. The submitted plan shall also address all aspects of establishing and demarcating regulated areas, ventilation/containment system performance verification, and reporting of accidental releases.

Waste Classification, Handling, and Disposal Plan; G, RE

The contractor shall submit a Waste Classification, Handling, and Disposal Plan in accordance with the requirements of 40 CFR 261 and 40 CFR 262 and paragraph Waste Classification, Handling, and Disposal.

Containment Plan; G, RE

The Contractor shall submit a plan for containing debris generated during paint removal operations in accordance with the requirements of paragraph Containment. The plan shall include drawings, load-bearing capacity calculations, and wind load calculations. When the design is such that the spent abrasive is allowed to accumulate in quantities greater than 1,000 pounds, and/or impart a significant wind load on the structure, the contractor shall have the drawings approved by a registered structural engineer. The drawings and calculations shall be stamped with the engineer's seal. The contractor shall also identify the procedures for removing debris.

Visible Emissions Monitoring Plan; G, RE

The Contractor shall submit a Visible Emissions Monitoring Plan in accordance with the paragraph Visible Emissions Monitoring. The plan shall include the provisions for halting work and correcting the containment in the event unacceptable emissions are observed. General statements shall not be used; specific methods, procedures, and details are required.

Water Quality Plan; G, RE

For all job sites where lead-containing or other hazardous paint will be removed, the Contractor shall submit a Water Quality Plan. The plan shall include provisions for halting work if spills or emissions are observed entering into bodies of water or found in areas where storm water runoff could carry the debris into bodies of water or storm sewers. The plan shall also address cleanup and reporting procedures.

Soil Quality Plan; G, RE

For all job sites where lead-containing or other hazardous paint will be removed, the Contractor shall submit a Soil Quality Plan. The plan shall include provisions for halting the work should soil contamination from this project occur, correcting the deficiencies responsible for the contamination, and provide procedures for removing and replacing contaminated soil.

SD-04 Samples

Specification and Proprietary Paints; G, ED

The Contractor shall submit samples of all special paint formula and SSPC paints. For products that are specified to be applied in accordance with the manufacturer's recommendations the Contractor shall submit the paint producers product data sheet or other written instructions for those products. When the required quantity of any type is 50 gallons or less, the Contractor shall submit in lieu of the liquid paint sample:

a. A certified test report showing the results of required tests made on the material and a statement that it meets all of the specification requirements.

b. A certified test report showing the results of required tests made on a previous batch of paint produced by the same firm using the same ingredients and formulation except for minor differences necessitated by a color change and a statement that the previous batch met all of the specification requirements. A report of tests on the proposed batch showing the following properties applicable to the material specifications shall be furnished: color, gloss, drying time, opacity, viscosity, weight per gallon (liter), and fineness of grind.

Thinners; G, RE

Samples shall be submitted of the thinners which are those solvents used to reduce the viscosity of the paint.

~~Caulking; G, RE~~

~~Provide the name, generic type, and MSDS for the proposed material. The caulking must be approved by the coating manufacturer for use. Include a letter from the coating manufacturer acknowledging acceptance of the caulking for use with the coating system.~~

SD-06 Test Reports

TSP Monitoring Report

The Contractor shall submit reports of the TSP monitoring tests as described in paragraph TSP Monitoring.

Airborne Sampling Report

The Contractor shall submit reports of airborne sampling tests as required by paragraph Airborne Sampling.

Inspection and Operation Records

The Contractor shall submit records of inspections and operations performed in accordance with paragraph INSPECTION. Submittals shall be made on a daily basis.

SD-07 Certificates

Qualifications and Experience; G, RE

The Contractor shall submit certification pursuant to paragraph QUALIFICATIONS for all job sites. Submittal of the qualifications and experience of any additional qualified and competent persons employed to provide on-site environmental, safety, and health shall also be provided. Acceptance of this submission must be obtained prior to the submission of other required environmental, safety, and health submittal items.

Qualified Painting Contractor; G, RE

The painting firm will be required to submit evidence of its painting qualifications in accordance with SSPC QP 1 and SSPC QP 2; and such qualifications shall be current and fully maintained throughout the duration of the cleaning and painting work of this contract.

The Contractor shall notify SSPC Painting Contractor Certification Program (PCCP) in writing a minimum of two weeks prior to the start up of work at the jobsite (tel. 1-877-281-7772). A copy of the notification shall be submitted to the Contracting Officer for information.

Qualified Hazardous Paint Removal Contractor; G, Re

The Contractor shall submit a copy of their current SSPC QP 2 certification.

Qualified Coating Thickness Gages

Documentation of manufacturer's certification shall be submitted for all coating thickness gages.

1.4 GENERAL REQUIREMENTS FOR CLEANING AND PAINTING THE BOURNE BRIDGE

1.4.1 Surfaces To Be Painted

Except as provided in paragraph "Surfaces Not To Be Painted" below, all metal surfaces comprising the Bourne Bridge structure and accessories shall be cleaned to the commercial grade and painted under this contract, in strict accordance with the requirements of these specifications and the information drawings. The approximate total weight of structural steel for the Bourne Bridge is 7,234 tons. Steel ladders and platforms within the interior rooms of the bridge abutments shall also be cleaned and painted under this contract.

1.4.1.1 Condition of Existing Paint System

Paint failure and rusting is extensive on the bridge structure. Coating failure has also occurred at difficult to clean locations such as the joints and crevices of lattice and built up members due to poor surface preparation under previous painting contracts. All existing paint and corrosion shall be completely removed from the entire structure, except for items specified in paragraph "Surfaces Not To Be Painted."

1.4.1.2 Access Through Suicide Deterring Fence

The suicide deterring fence contains access panels which are bolted shut

and may be carefully removed and replaced as necessary to properly access adjacent parts of the bridge structure for proper cleaning and painting.

1.4.2 Surfaces Not To Be Painted

a. Utilities: Surfaces of the six wooden telephone ducts carried on the structural steel members on the underside of the sidewalk and their hangers and fastenings shall not be painted. Except as otherwise specified, electrical equipment including closed circuit television cameras shall not be painted. Surfaces of the 10-inch diameter gas pipes shall not be painted.

b. Non-ferrous Surfaces: Bronze metal surfaces including tablets, figures, lettering, and any other items of bronze which are encountered shall be protected from defacement of any kind, including paint drippings. Concrete surfaces shall not be painted.

c. Stainless steel surfaces, wearing surfaces of bridge steel in roadbed on top of decks, operating surfaces of safety devices, and elsewhere as indicated or specified shall not be painted. However, these items shall be left clean, and the operating items shall be final tested as to their operative functions and made operating to the satisfaction of the Contracting Officer if found inoperative.

1.4.3 Operational Restrictions

a. When working below the Bridge deck, surface preparation and priming in a bay including any required touchup priming, shall be completed prior to finish painting in that bay.

b. Work below the bridge deck shall be accomplished without obstructing bridge traffic. Compressors, hoppers or other equipment that may obstruct the flow of traffic will not be permitted on the bridge deck when all lanes of the bridge are required to be open to traffic.

c. Barges and marine equipment will not be allowed to be stationed in the Cape Cod Canal.

d. Painting will not be permitted on the north side of the Bourne Bridge, spans 2, 4, and 6, from Memorial Day through Labor Day (due to operation of Bourne Scenic Park), unless work is conducted under Level 1A containment in accordance with Steel Structures Painting Council SSPC Guide 6.

1.4.4 Unsatisfactory Work

If, before the final acceptance of the entire work covered under this contract, it should be found that any surface specified to be painted has not been properly cleaned in accordance with these specifications or that any surface has been coated with impure or unauthorized paint, such surface shall be thoroughly cleaned and repainted as originally specified herein, at no additional expense to the Government. No mechanical item shall be painted in such manner that it is prevented from operating properly.

1.4.5 Responsibility for Damages

The Contractor shall be responsible for any damages to existing structures or other items resulting from his painting operation. Any items damaged by

the Contractor shall be cleaned, repaired or replaced as directed by the Contracting Officer.

1.4.6 Original Paint Systems

The original painting system on the bridge consists of two coats of red lead and linseed oil and a finish coat of white lead and linseed oil. Subsequent repaintings have been done with a ready mixed paint consisting of aluminum paint, tung oil and phenolic varnish. ~~The steel within 10 feet of the roadway joints has been coated with coal tar epoxy.~~ The bridge has been repainted eight times since its construction. The most recent maintenance painting was performed in 1992 using an alkyd metal primer and intermediate coat, topped with an aluminum finish.

~~1.00.6.1 Coal Tar Epoxy~~

~~In 1992, the following surfaces were cleaned and painted with coal tar epoxy system SSPC Paint System 16.~~

~~a. Concrete and steel structures within the area under expansion and deflection joints between the surfaces of the bridge steelwork facing.~~

~~b. Inside of scupper drain extensions.~~

~~c. Exposed surfaces of scupper drain extensions.~~

1.5 QUALIFICATIONS

Qualifications and experience shall comply with the following.

1.5.1 Certified Professional

The Contractor shall utilize a qualified and competent person as defined in Section 01 of EM 385-1-1 to develop the required safety and health submittal and to provide on-site safety and health services during the contract period. The person shall be a Certified Industrial Hygienist (CIH), an Industrial Hygienist (IH), or a Certified Safety Professional (CSP) with a minimum of 3 years of demonstrated experience in similar related work. The Contractor shall certify that the Certified Industrial Hygienist (CIH) holds current and valid certification from the American Board of Industrial Hygiene (ABIH), that the IH is considered board eligible by written confirmation from the ABIH, or that the CSP holds current and valid certification from the American Board of Certified Safety Professionals. The CIH, IH, or CSP may utilize other qualified and competent persons, as defined in EM 385-1-1, to conduct on-site safety and health activities as long as these persons have a minimum of 2 years of demonstrated experience in similar related work and are under the direct supervision of the CIH, IH, or CSP. For this lead containing jobsite, the competent and qualified person shall have successfully completed an EPA or state accredited lead-based paint abatement Supervisor course specific to the work to be performed and shall possess current and valid state and/or local government certification, as required.

1.5.2 Certified Laboratory

The Contractor shall provide documentation which includes the name, address, and telephone number of the laboratories to be providing services. In addition, the documentation shall indicate that each laboratory is an EPA National Lead Laboratory Accreditation Program (NLLAP) accredited

laboratory and that each is rated proficient in the NIOSH/EPA Environmental Lead Proficiency Analytical Testing Program (ELPAT)and will document the date of current accreditation. Certification shall include accreditation for heavy metal analysis, list of experience relevant to analysis of lead in air, and a Quality Assurance and Quality Control Program.

1.5.3 Qualified Painting Contractor

The Contractor shall be a certified SSPC-QP 1 Painting Contractor.

1.5.4 Qualified Hazardous Paint Removal Contractor

The Contractor shall be a certified SSPC-QP 2 Painting Contractor. The qualification categories held shall be commensurate with the work of this contract.

1.5.5 Coating Thickness Gage Qualification

Documentation of certification shall be submitted for all coating thickness gages. Magnetic flux thickness gages as described in ASTM D 1186 shall be used to make all coating thickness measurements on ferrous metal substrates. Gages shall have an accuracy of +/- 3 percent or better. Gages to be used on the job shall be certified by the manufacturer as meeting these requirements.

1.6 SAFETY AND HEALTH PROVISIONS

Work shall be performed in accordance with the requirements of 29 CFR 1910, 29 CFR 1926, EM 385-1-1, and other references as listed herein. Matters of interpretation of the standards shall be submitted to the Contracting Officer for resolution before starting work. Where the regulations conflict, the most stringent requirements shall apply. Paragraph SAFETY AND HEALTH PROVISIONS supplements the requirements of EM 385-1-1, paragraph (1) and Section 01525 SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS. In any conflict between Section 01 of EM 385-1-1, Section 01525, and this paragraph, the provisions herein shall govern.

1.6.1 Abrasive Blasting

The Contractor shall comply with the requirements in Section 06.H of EM 385-1-1.

1.6.1.1 Hoses And Nozzles

In addition to the requirements in Section 20 of EM 385-1-1, hoses and hose connections of a type to prevent shock from static electricity shall be used. Hose lengths shall be joined together by approved couplings of a material and type designed to prevent erosion and weakening of the couplings. The couplings and nozzle attachments shall fit on the outside of the hose and shall be designed to prevent accidental disengagement.

1.6.1.2 Workers Other Than Blasters

Workers other than blasting operators working in close proximity to abrasive blasting operations shall be protected by utilizing MSHA/NIOSH-approved half-face or full-face air purifying respirators equipped with high-efficiency particulate air (HEPA) filters, eye protection meeting or exceeding ANSI Z87.1 and hearing protectors (ear plugs and/or ear muffs) providing a noise reduction rating of at least 20

dBA or as needed to provide adequate protection.

1.6.2 Cleaning with Compressed Air

Cleaning with compressed air shall be in accordance with Section 20.B.5 of EM 385-1-1 and personnel shall be protected as specified in 29 CFR 1910.134.

1.6.3 Cleaning with Solvents

1.6.3.1 Ventilation

Ventilation shall be provided where required by 29 CFR 1910.146 or where the concentration of solvent vapors exceeds 10 percent of the Lower Explosive Limit (LEL). Ventilation shall be in accordance with 29 CFR 1910.94, paragraph (c)(5).

1.6.3.2 Personal Protective Equipment

Personal protective equipment shall be provided where required by 29 CFR 1910.146 and in accordance with 29 CFR 1910, Subpart I.

1.6.4 Mixing Epoxy and Polyurethane Resin Formulations

1.6.4.1 Exhaust Ventilation

Local exhaust ventilation shall be provided in the area where the curing agent and resin are mixed. This ventilation system shall be capable of providing at least 100 linear fpm of capture velocity measured at the point where the curing agent and resin contact during mixing.

1.6.4.2 Personal Protective Equipment

Exposure of skin and eyes to epoxy resin components shall be avoided by wearing appropriate chemically resistant gloves, apron, safety goggles, and face shields meeting or exceeding the requirements of ANSI Z87.1.

1.6.4.3 Medical Precautions

Individuals who have a history of sensitivity to epoxy or polyurethane resin systems shall be medically evaluated before any exposure can occur. Individuals who are medically evaluated as exhibiting a sensitivity to epoxy resins shall not conduct work tasks or otherwise be exposed to such chemicals. Individuals who develop a sensitivity shall be immediately removed from further exposure and medically evaluated.

1.6.4.4 Emergency Equipment

A combination unit, comprised of an eyewash and deluge shower, within close proximity to the epoxy or polyurethane resin mixing operation shall be provided in accordance with ANSI Z358.1, paragraph (9).

1.6.5 Paint Application

1.6.5.1 Ventilation

When using solvent-based paint in confined spaces, ventilation shall be provided to exchange air in the space at a minimum rate of 5,000 cubic feet per minute per spray gun in operation. It may be necessary to install both a mechanical supply and exhaust ventilation system to effect adequate air

changes within the confined space. All air-moving devices shall be located and affixed to an opening of the confined space in a manner that assures that the airflow is not restricted or short circuited and is supplied in the proper direction. Means of egress shall not be blocked. Ventilation shall be continued after completion of painting and through the drying phase of the operation. If the ventilation system fails or the concentration of volatiles exceeds 10 percent of the LEL (except in the zone immediately adjacent to the spray nozzle), painting shall be stopped and spaces evacuated until such time that adequate ventilation is provided. An audible alarm that signals system failure shall be an integral part of the ventilation system. The effectiveness of the ventilation shall be checked by using ventilation smoke tubes and making frequent oxygen and combustible gas readings during painting operations. Exhaust ducts shall discharge clear of the working areas and away from possible sources of ignition.

1.6.5.2 Explosion Proof Equipment

Electrical wiring, lights, and other equipment located in the paint spraying area shall be of the explosion proof type designed for operation in Class I, Division 1, Group D, hazardous locations as required by the NFPA 70. Electrical wiring, motors, and other equipment, outside of but within 20 feet of any spraying area, shall not spark and shall conform to the provisions for Class I, Division 2, Group D, hazardous locations. Electric motors used to drive exhaust fans shall not be placed inside spraying areas or ducts. Fan blades and portable air ducts shall be constructed of nonferrous materials. Motors and associated control equipment shall be properly maintained and grounded. The metallic parts of air-moving devices, spray guns, connecting tubing, and duct work shall be electrically bonded and the bonded assembly shall be grounded.

1.6.5.3 Further Precautions

a. Workers shall wear nonsparking safety shoes.

b. Solvent drums taken into the spraying area shall be placed on nonferrous surfaces and shall be grounded. Metallic bonding shall be maintained between containers and drums when materials are being transferred.

c. Insulation on all power and lighting cables shall be inspected to ensure that the insulation is in excellent working condition and is free of all cracks and worn spots. Cables shall be further inspected to ensure that no connections are within 50 feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.

1.6.5.4 Ignition Sources

Ignition sources, to include lighted cigarettes, cigars, pipes, matches, or cigarette lighters shall be prohibited in area of solvent cleaning, paint storage, paint mixing, or paint application.

1.6.6 Health Protection

1.6.6.1 Air Sampling

The Contractor shall perform air sampling and testing as needed to assure that workers are not exposed to contaminants above the permissible exposure

limit. In addition, the Contractor shall provide the Contracting Officer with a copy of the test results from the laboratory within five working days of the sampling date and shall provide results from direct-reading instrumentation on the same day the samples are collected.

1.6.6.2 Respirators

During all spray painting operations, spray painters shall use approved SCBA or SAR (air line) respirators, unless valid air sampling has demonstrated contaminant levels to be consistently within concentrations that are compatible with air-purifying respirator Assigned Protection Factor (APF). Persons with facial hair that interferes with the sealing surface of the facepiece to faceseal or interferes with respirator valve function shall not be allowed to perform work requiring respiratory protection. Air-purifying chemical cartridge/canister half- or full-facepiece respirators that have a particulate prefilter and are suitable for the specific type(s) of gas/vapor and particulate contaminant(s) may be used for nonconfined space painting, mixing, and cleaning (using solvents). These respirators may be used provided the measured or anticipated concentration of the contaminant(s) in the breathing zone of the exposed worker does not exceed the APF for the respirator and the gas/vapor has good warning properties or the respirator assembly is equipped with a NIOSH-approved end of service life indicator for the gas(es)/vapor anticipated or encountered. Where paint contains toxic elements such as lead, cadmium, chromium, or other toxic particulates that may become airborne during painting in nonconfined spaces, air-purifying half- and full-facepiece respirators or powered air-purifying respirators equipped with appropriate gas vapor cartridges, in combination with a high-efficiency filter, or an appropriate canister incorporating a high-efficiency filter, shall be used.

1.6.6.3 Protective Clothing and Equipment

All workers shall wear safety shoes or boots, appropriate gloves to protect against the chemical to be encountered, and breathable, protective, full-body covering during spray-painting applications. Where necessary for emergencies, protective equipment such as life lines, body harnesses, or other means of personnel removal shall be used during confined-space work.

1.7 MEDICAL STATUS

Prior to the start of work and annually thereafter, all Contractor employees working with or around paint systems, thinners, blast media, those required to wear respiratory protective equipment, and those who will be exposed to high noise levels shall be medically evaluated for the particular type of exposure they may encounter. Medical records shall be maintained as required by 29 CFR 1910.20. The evaluation shall include:

a. Audiometric testing and evaluation of employees who will work in a noise environment with a time weighted average greater than or equal to 90 dBA.

b. Vision screening (employees who use full-facepiece respirators shall not wear contact lenses).

c. Medical evaluation shall include, but shall not be limited to, the following:

(1) Medical history including, but not limited to, alcohol use,

with emphasis on liver, kidney, and pulmonary systems, and sensitivity to chemicals to be used on the job.

(2) General physical examination with emphasis on liver, kidney, and pulmonary system.

(3) Determination of the employee's physical and psychological ability to wear respiratory protective equipment and to perform job-related tasks.

(4) Determination of baseline values of biological indices for later comparison to changes associated with exposure to paint systems and thinners or blast media, which include: liver function tests to include SGOT, SGPT, GGPT, alkaline phosphates, bilirubin, complete urinalysis, EKG (employees over age 40), blood urea nitrogen (bun), serum creatinine, pulmonary function test, FVC, and FEV, chest x-ray (if medically indicated), blood lead and ZPP (for individuals where it is known there will be an exposure to materials containing lead), other criteria that may be deemed necessary by the Contractor's physician, and Physician's statements for individual employees that medical status would permit specific task performance.

(5) For lead-based paint removal, the medical requirements of 29 CFR 1926.62 shall also be included.

1.8 CHANGE IN MEDICAL STATUS

Any employee whose medical status has changed negatively due to work related chemical and/or physical agent exposure while working with or around paint systems and thinners, blast media, or other chemicals shall be evaluated by a physician, and the Contractor shall obtain a physicians statement as described in paragraph MEDICAL STATUS prior to allowing the employee to return to those work tasks. The Contractor shall notify the Contracting Officer in writing of any negative changes in employee medical status and the results of the physicians reevaluation statement.

1.9 ENVIRONMENTAL PROTECTION

In addition to the requirements of Section 01355 the Contractor shall comply with the following environmental protection criteria.

1.9.1 Lead Protection Program

The existing paint on the Bourne Bridge includes red lead primer; therefore tight control over dust and lead emissions shall be instituted during cleaning operations to minimize the impact on the health and safety of the workers and the environment. Level 2A containment in accordance with Steel Structures Painting Council SSPC Guide 6 is required for all abrasive blast cleaning operations on the Bridge.

The Contractor shall develop a comprehensive lead protection program in accordance with 29 CFR 1926.62. The program shall include, but is not limited to the following:

a. Containment and Ventilation Plans

b. Visible Emissions Monitoring Plan

c. Ambient Air Monitoring Plan

d. Personal Monitoring Plan

e. Soil Quality Plan

1.9.2 Waste Classification, Handling, and Disposal

The Contractor shall be responsible for assuring the proper disposal of all hazardous and nonhazardous waste generated during the project. Waste generated from abrasive blasting lead-containing paints with recyclable steel or iron abrasives shall be disposed of as a hazardous waste or shall be stabilized with proprietary pre-blast additives regardless of the results of 40 CFR 261, App II, Mtd 1311. Where stabilization is preferred, the contractor shall employ a proprietary blast additive, that has been blended with the blast media prior to use. Hazardous waste shall be placed in properly labeled closed containers and shall be shielded adequately to prevent dispersion of the waste by wind or water. Any evidence of improper storage shall be cause for immediate shutdown of the project until corrective action is taken. Nonhazardous waste shall be stored in closed containers separate from hazardous waste storage areas. All hazardous waste shall be transported by a licensed transporter in accordance with 40 CFR 263 and 49 CFR 171, Subchapter C. All nonhazardous waste shall be transported in accordance with local regulations regarding waste transportation. In addition to the number of manifest copies required by 40 CFR 262.22, one copy of each manifest shall be supplied to the Contracting Officer prior to transportation.

1.9.3 Containment Plan

a. Where abrasive blasting will be performed, the Contractor shall contain debris generated during paint removal operations in accordance with the requirements of SSPC Guide 6, Class 2A. Where required the containment air pressure shall be verified visually. Where required the minimum air movement velocity shall be 100 fpm for cross-draft ventilation or 60 fpm for downdraft ventilation. See also Article "Operational Restrictions" above.

b. Where power tool cleaning will be performed, the Contractor shall contain debris generated during paint removal operations in accordance with the requirements of SSPC Guide 6, Class 1P. Where vacuum-shrouded power tools are used, the Contractor shall use ground covers and free hanging tarpaulins to confine and contain blast debris.

c. Provide the following containment working drawings and other information to the for review and approval by the Contracting Officer a minimum of 21 calendar days prior to the erection of the containment system. Do not begin the erection of the containment enclosure, or conduct any paint disturbance activities until approval has been provided. Throughout the entire project, only conduct work within approved containment enclosures.

d. Detailed drawings stamped by a Professional Engineer, licensed in the State of Massachusetts, shall be provided for the containment system.

e. Do not allow the containment system to induce a load on the bridge which will exceed the legal highway or bridge load limits, create an overstress condition, or otherwise effect the structural integrity of the bridge. Analyze the bridge for the effects of wind forces as well as the

containment system itself and all other imposed loads (e.g. equipment, waste, traffic, etc.). Do not allow the stresses calculated in the bridge structure, together with all other imposed loads, to exceed the "Allowable Stresses for Operating Rating" stipulated in AASHTO Manual for Maintenance Inspection of Bridges, 1983, as amended..

f. The Contractor shall be responsible for determining the appropriate design wind speed for the containment enclosure(s). Prior to submitting the containment design(s) the Contractor shall verify the appropriateness of the design wind speed by actual instrumented measurements. During the project, the Contractor shall monitor wind speeds in the vicinity of the containment enclosure(s) with instrumentation (anemometer). As wind speeds approach the design wind speed, the Contractor shall implement provisions to relieve the containment wind loadings. If wind speeds exceed the design wind speed, the Contractor shall immediately suspend use of and remove the containment enclosure and make provisions to properly relieve the containment wind loadings. The Contractor may redesign the containment enclosure(s) or suspend operations until the actual wind speeds fall to levels below the design wind speed. The cost of all wind monitoring shall be a subsidiary to the cleaning and painting operations. Any release of pollutants from the containment enclosure(s) to the surrounding environment due to containment failure whether designed or accidental, requires the immediate suspension of work. Prior to resuming work, the Contractor shall take appropriate action to abate the discharge and obtain the Contracting Officer's concurrence on a plan of action to prevent reoccurrence. The cost of all delays, clean up, modification of containment structure and process, to prevent reoccurrence shall be borne by the Contractor. Any delays due to the suspension of work due to high winds or containment failure as described above shall not relieve the Contractor from completing the work on time.

g. Do not allow the system to encroach upon the required bridge clearances. Unless otherwise directed by the Contracting Officer, maintain 20 feet minimum clearance between the roadway and the bottom of the containment.

h. Data, calculations, and assumptions used for the design of the containment and ventilation system and the imposed loads on the existing structure shall be submitted, signed by a Professional Engineer licensed in the State of Massachusetts..

i. The plan for staging, installing, moving, and removing the containment; and the methods of attachment that will be used shall be submitted. Make attachment points to substantial framing members only. Include the methods of access that will be provided to work areas inside containment, locations of safety lines, and locations of containment entryways.

j. Provisions for dropping the containment in inclement weather, and the controls that will be exercised to prevent excessive sagging during cable installation (e.g. temporary cradles) to ensure the protection of traffic shall be submitted..

k. Plans for maintaining the navigational lighting during the work shall be submitted.

l. Plans for lighting the inside of the containment for surface preparation, painting, and inspection shall be submitted.

m. Technical data sheets, specification sheets, any other information

needed to thoroughly describe the containment plan, materials, and containment and ventilation equipment proposed for use shall be submitted.

1.9.4 Visible Emissions Monitoring

The time of emissions shall be measured in accordance with 40 CFR 60, App A, Mtd 22. Visible emissions shall be monitored for not less than 15 minutes of every hour. Visible emissions for each hour shall be calculated by extrapolation. In no case shall visible emissions extend greater than 150 feet in any direction horizontal from the containment. In no case shall visible emissions be observed in the area of any sensitive receptor. If such emissions occur the job shall be shut down immediately and corrective action taken. The foreman shall be notified whenever visible emissions exceed 40 seconds in a 1 hour period. The foreman shall be notified and the job shall be shut down and corrective action taken whenever visible emissions exceed 75 seconds in a 2 hour period. Total observed visible emissions from the containment shall not exceed 1 percent of the work day. Shutdown and corrective action shall be taken by the Contractor to prevent such an occurrence. The Contractor shall document each time that the work is halted due to a violation of the visible emissions criteria. Documentation shall include the cause for shutdown and the corrective action taken to resolve the problem.

1.9.5 TSP Monitoring

The Contractor shall perform TSP monitoring. The positioning of air monitoring equipment shall be in accordance with 40 CFR 58, App E, Subpart (8). In addition, a minimum of two TSP monitors shall be used at the project site, one down wind from the project and one in the area of greatest public access (e.g. Bourne Scenic Park, and homeowner's yard if directed). TSP-lead monitoring shall be conducted in accordance with 40 CFR 50, App B. When the project is in an area where there are critical receptors nearby, monitoring shall be conducted throughout the entire period that abrasive blasting and cleanup operations are performed. Otherwise, monitoring shall be performed 4 of the first 8 days and on a regular basis thereafter for a sum total of 25 percent of the time surface preparation and debris cleanup are performed. Failure to meet air quality regulatory limits shall require air monitoring to be repeated immediately after corrective actions have been taken. The Contractor shall also conduct preproject TSP monitoring. The preproject TSP monitoring shall be conducted a minimum of 2 weeks prior to the beginning of the project. The monitoring shall continue for a minimum of 3 days to establish background levels. A report of the results shall be submitted to the Contracting Officer within 48 hours and shall include:

(1) Name and location of jobsite.

(2) Date of monitoring.

(3) Time of monitoring (i.e., time monitoring begins and ends each day).

(4) Identification and serial number of monitoring units.

(5) Drawing showing specific location of monitoring units.

(6) Drawing showing specific location of paint removal operation and the method of removal or work activity being performed.

(7) Wind direction and velocity.

(8) A flow chart verifying the rate of air flow across the filter throughout the sampling period.

(9) Name and address of laboratory.

(10) Laboratory test procedure.

(11) Laboratory test results.

(12) Signatures of field and laboratory technicians conducting the work.

1.9.6 Water Quality

The Contractor shall conduct operations in such a manner that lead-containing and other hazardous paint debris do not contaminate the water and so that NPDES permits per EPA regulation 40 CFR 122 are not required for the project. In the event that there are any releases of lead paint debris into the waterways, with reportable quantities of hazardous substances designated pursuant to Section 311 of the Clean Water Act, they shall be reported to the EPA in accordance with 40 CFR 117 and 40 CFR 355. Releases or spills that carry into waterways or storm sewers shall be thoroughly documented. The documentation shall include the time and location of the release, amount of material released, actions taken to clean up the debris, amount of debris recovered, and corrective action taken to avoid a reoccurrence. Releases shall also be reported to the Coast Guard and other state and local authorities as appropriate. If the release is equivalent to 10 pounds or more of lead-containing material in a 24-hour period, it is considered to be a reportable quantity under CERCLA. The Contractor shall comply with 40 CFR 302.

1.9.7 Soil Quality

The Contractor shall establish and implement practices and procedures for preventing contamination of the soil from the removal of lead-containing or other hazardous paints. Unless otherwise directed by the Contracting Officer, soil shall be considered to have been contaminated by the Contractor's operation if an increase in the total lead content of 100 PPM or greater over background levels occurs. For purposes of computing the increase compute the mean background levels and the mean post-removal levels. The 100 PPM criteria is met if the difference between the means is less than 100 PPM plus the 95 percent confidence limit. Soil sampling and testing shall be conducted prior to the beginning of the project and after the project is completed. Interim testing may also be performed in the event the Contractor or Contracting Officer wants to confirm that the containment system and work practices continue to provide satisfactory protection of the soil. Unless otherwise directed by the Contracting Officer, the following minimum test locations shall be selected for soil analysis. Two locations shall be selected beneath or immediately adjacent to the structure being prepared, and additional samples shall be taken within 100 feet in each direction of the project (i.e., N, S, E, W) in which soil is present. The number of soil sample locations shall be sufficient to adequately characterize the soil contaminant levels within and around the project area. Five composite samples shall be collected at each location. Each of the five samples shall be comprised of five individual plugs of soil combined in a single bag. The composite samples at each location shall be collected using the following procedure:

a. Place a 1-square foot template at each location.

b. Remove a sample of soil 3/4 inch in diameter and 1/2 inch in depth at the center of the template and at each of the four corners. Place the five soil plugs into a single bag. This represents one of the three samples to be removed at a given location.

c. Move the template 1 inch in any direction and repeat the process to collect the second sample. Place all plugs in a separate bag. Move the template 1 inch farther to collect the third sample.

d. Identify each sample bag with the date, specific location of the sample, name and signature of the sampling technician, and complete chain of custody records.

e. It is critical that the specific location of each sample be thoroughly measured and documented as the final project testing (and any interim testing) must be sampled in the precise locations.

Three samples collected at each location shall be analyzed. One of the remaining two samples shall be maintained by the Contractor for the duration of the project and the other by the Contracting Officer in the event reanalysis is required. Lead-containing samples shall be analyzed in accordance with EPA testing guidance as published in 40 CFR 261, App III, by a laboratory listed by the American Industrial Hygiene Association (AIHA) as being proficient in conducting the test. The Contractor shall note that if it is determined that contamination of the soil has occurred as a result of the paint removal operations, TCLP testing will be employed to determine if the soil must be handled and disposed of as a hazardous waste. The initial sampling of the soil for total lead content does not establish whether the soil would be considered hazardous by TCLP testing. As a result, at the Contractor's option, additional prework soil samples may be removed (minimum of 105 grams is required for a single test at each site) to conduct TCLP testing to establish whether the soil would be classified as hazardous prior to project startup. In the event that there is a release of lead paint debris onto the soil and if the release is 10 pounds or more of lead-containing material in a 24-hour period, it is considered to be a reportable quantity under CERCLA. The Contractor shall comply with 40 CFR 302. The Contractor shall thoroughly document the occurrence of any spills of lead debris into the soil. The documentation shall include the time and location of the release, amount of material released, actions taken to clean up the debris, amount of debris reclaimed, and corrective action taken to avoid a reoccurrence. The documentation shall be provided to the Contracting Officer and shall also include the results of laboratory testing.

1.10 PAINT PACKAGING, DELIVERY, AND STORAGE

Paints shall be processed and packaged to ensure that within a period of one year from date of manufacture, they will not gel, liver, or thicken deleteriously, or form gas in the closed container. Paints, unless otherwise specified or permitted, shall be packaged in standard containers not larger than 5 gallons, with removable friction or lug-type covers. Each container of paint or separately packaged component thereof shall be labeled to indicate the purchaser's order number, date of manufacture, manufacturer's batch number, quantity, color, component identification and designated name, and formula or specification number of the paint together with special labeling instructions, when specified. Paint shall be

delivered to the job in unbroken containers. Paints that can be harmed by exposure to cold weather shall be stored in ventilated, heated shelters. All paints shall be stored under cover from the elements and in locations free from sparks and flames.

PART 2 PRODUCTS

2.1 MOISTURE-CURE URETHANE PAINT SYSTEM

2.1.1 Paint System General Requirements

a. Provide the type and quantity of moisture curing coating materials, thinners, and cleaning solvents needed to paint all surfaces as specified in this Section.

b. Use coatings that are compliant with Federal and State VOC regulations at the time of application. This includes the use of any required thinners.

c. Use the same manufacturer for all coats on the structure, including thinners and additives. Do not co-mix coating products or components produced by different manufacturers under any circumstances.

d. Provide each coat of paint in a contrasting color to distinguish it from previously applied or existing coatings.

e. Order all paint, thinner, and cleaning materials well in advance of intended use. Maintain an adequate supply of all materials on site at all times so as to not delay the Work.

f. Provide all paint materials in sealed, original, containers that are properly marked and labeled to allow verification with applicable material safety data sheets, application precautions, and instructions. Verify that the labeling includes the manufacturer's name, type of material, brand name, color designation, shelf life, contract or order number under which the material has been ordered, lot and batch numbers, and quantity.

g. Provide a 3 inch x 6 inch panel coated with the finish color with the submittals.

2.1.2 Primer Coating

Single-component moisture-cure zinc-rich polyurethane primer coating.

Generic type:	Zinc-rich, single-component, moisture-cure polyurethane
Vehicle type:	Moisture-cure polyurethane
Volume solids:	60% minimum
Pigment type:	83% min. zinc dust in the dry film by weight
Weight per volume:	22 pounds (2.64 kg/L) minimum
VOC:	2.8 lb./gal. (340 g/L) maximum
Color:	Tinted to contrast with blasted steel

2.1.3 Polyurethane Penetrating Sealer (Stripe Coat Only, See Article "Coverage, Continuity, and Stripe Coating," Subarticle "d.")

Single-component moisture-cure polyurethane penetrating sealer primer #2

Generic type:	Single-component, moisture-cure polyurethane penetrating sealer
Vehicle type:	Moisture-cure polyurethane

Volume solids:	60% minimum
Weight per gallon:	8.5 pounds minimum
VOC:	2.8 lb./gallon maximum
Color:	Tinted to contrast with blasted steel

2.1.4 Intermediate Coating

Single-component moisture-cure aromatic polyurethane with micaceous iron oxide (MIO) intermediate coating.

Generic type:	MIO, single-component, moisture-cure aromatic polyurethane
Vehicle type:	Moisture-cure polyurethane
Volume solids:	60% minimum
Pigment type:	3.0 pounds/gallon micaceous iron oxide
Weight per volume:	12-14 lb./gal. (1.4-1.68 kg/L) minimum
VOC:	2.8 lb./gal. (340 g/L) maximum
Color:	To contrast with primer and finish coat

2.1.5 Finish Coating

Single-component moisture-cure aliphatic polyurethane with micaceous iron oxide (MIO) finish coating.

Generic type:	Single-component, moisture-cure aliphatic polyurethane
Vehicle type:	Moisture-cure polyurethane
Volume solids:	53% minimum
Pigment type:	3.0 pounds/gallon micaceous iron oxide
Weight per gallon:	12-14 pounds/gallon minimum
VOC:	3.5 lb./gallon maximum
Color:	Bright Aluminum.
Finish:	Semi-gloss

2.1.6 Acceptable Paint Systems

The following list of paint systems are approved.

a. Wasser High Tech Coatings
8041 South 228th, Building 103, Kent, Washington 98032
(206)-850-2967
Local contact: Ben Forde (617)-747-7344

Primer:	Wasser MC-Zinc
Stripe Coat	Wasser MC-PrepBond
Intermediate:	Wasser MC-Ferrox B
Finish:	Wasser MC-Ferrox A

b. Primer: Sherwin Williams COROTHANE I
Stripe Coat: Sherwin Williams COROTHANE Preprime 1
Intermediate: Sherwin Williams COROTHANE I IRONOX B
Finish: Sherwin Williams COROTHANE I IRONOX A

c. The specified paint system is designated solely as a standard of quality. An equivalent system may be used as approved by the Contracting Officer. An equivalent system shall:

1. Meet the special material properties contained above;

2. Be a standard, regularly-produced product of a manufacturer, having been on the market for at least two years, and having a sales level of 1,000 gallons minimum during the past year;

3. Have a minimum of one year successful field exposure on at least one bridge structure (minimum 100 gallons for all coats) in a climate similar to that of the Cape Cod Canal;

4. Be submitted with product literature and a reference list of bridge painting projects where the system was used and the Contractor who applied them; and

5. Be certified by the manufacturer in writing that the coating will perform satisfactorily if applied at relative humidities up to 98%, ambient temperatures down to 20 degrees F., surface temperatures down to 20 degrees F. (the surface must be verified to be free of any frozen water products by an approved third party inspector when application is below 33 degrees F., using a 20x power magnifier), and without restriction on dewpoint temperature differential if the surface is visibly dry and free from condensate.

2.2 SPECIAL PAINT FORMULAS

Special paints shall have the composition as indicated in the formulas listed herein. Where so specified, certain components of a paint formulation shall be packaged in separate containers for mixing on the job. If not specified or otherwise prescribed, the color shall be that naturally obtained from the required pigmentation.

2.3 PAINT FORMULATIONS

Special paint formulas shall comply with the following:

~~2.2.6 Formula C-200a, Coal Tar-Epoxy (Black) Paint~~

~~The paint shall conform to SSPC Paint 16 manufactured with Type 1 pitch. In addition to standard labeling, container labels shall include the term, Corps of Engineers Formula C-200a.~~

2.4 COMMENCEMENT OF PAINT OPERATIONS

Painting operations will not be allowed to commence prior to receipt by the Contractor of written approval of the paint samples by the Contracting Officer. Therefore, it is imperative that the Contractor submit paint samples as soon as possible after receipt of the notice to proceed.

PART 3 EXECUTION

3.1 CLEANING AND PREPARATION OF SURFACES TO BE PAINTED

3.1.1 General Requirements

Surfaces to be painted shall be cleaned before applying paint or surface treatments. Deposits of grease or oil shall be removed in accordance with SSPC SP 1, prior to mechanical cleaning. Solvent cleaning shall be accomplished with mineral spirits or other low toxicity solvents having a flash point above 100 degrees F. Clean cloths and clean fluids shall be

used to avoid leaving a thin film of greasy residue on the surfaces being cleaned. Items not to be prepared or coated shall be protected from damage by the surface preparation methods. Machinery shall be protected against entry of blast abrasive and dust into working parts. Cleaning and painting shall be so programmed that dust or other contaminants from the cleaning process do not fall on wet, newly painted surfaces, and surfaces not intended to be painted shall be suitably protected from the effects of cleaning and painting operations. Welding of, or in the vicinity of, previously painted surfaces shall be conducted in a manner to prevent weld spatter from striking the paint and to otherwise reduce coating damage to a minimum; paint damaged by welding operations shall be restored to original condition.

3.1.2 Containment Structures

For all surface preparation work the Contractor is responsible for designing a complete containment systems including, but not limited to, a fully enclosed containment structures (containment envelope, support structure, and entryways); a ventilation system (forced and/or natural air input and exhaust); dust collection equipment; and removal of debris from containment structure to a site storage facility. Containment systems shall prevent emissions of dust and debris to the ambient air, soil, and water to the maximum extent practicable; shall provide ventilation to minimize health risks and provide adequate visibility to workers; shall allow for the removal of the existing paint by the methods specified; shall be capable of withstanding wind and weather conditions that can be expected at the project site; shall be specifically designed for the physical conditions at the project site; and shall not compromise the structural integrity or exceed the load bearing capacity of the bridge structure. The design, materials, configuration, mobility, size, and all other aspects of the containment system, with the criteria specified, are the responsibility of the Contractor. The Contractor shall procure the services of a structural engineer, mechanical engineer, and an industrial hygienist for designing the containment system. Criteria to be used for verifying proper containment and environment protection from lead contaminated dust and debris are specified below.

3.1.3 Debris Control

Care shall be taken that no paint containers, pieces of scaffolding, debris, or any materials whatsoever, fall into the canal or to the ground. Should debris or construction materials fall from the bridge inadvertently, prompt corrective action shall be taken to prevent further occurrences and the fallen items shall be secured and removed. The contractor shall take all precautions practicable to prevent blast grit and paint chips from falling from the bridge. Blast cleaning debris deposited on horizontal surfaces of the superstructure and piers shall be collected and disposed of properly. Sweeping of blast debris off the bridge to the land or water below will not be permitted.

3.1.4 All Ferrous Surfaces Comprising the Bourne Bridge

Except as specified below, all existing ferrous surfaces comprising the Cape Cod Canal Bourne Bridge over the Cape Cod Canal shall be dry blasted to SSPC SP 6, "Commercial Blast Cleaning grade." All existing paint and corrosion shall be completely removed from the entire structure, except for items specified in paragraph "SURFACES NOT TO BE PAINTED." The blast profile shall be 1.5 to 2.5 mils as measured by ASTM D 4417, Method C. Appropriate abrasive blast media shall be used to produce the desired

surface profile and to give an angular anchor tooth pattern. If recycled blast media is used, an appropriate particle size distribution shall be maintained so that the specified profile is consistently obtained. Steel shot or other abrasives that do not produce an angular profile shall not be used. Limited areas of the Bridge, which are not practical to access with dry blast-cleaning equipment, shall be cleaned by power tool cleaning to the requirements of SSPC SP 11. Surfaces shall be dry at the time of blasting. Within 8 hours after cleaning, prior to the deposition of any detectable moisture, contaminants, or corrosion, all ferrous surfaces blast cleaned to SSPC SP 6 or power tool cleaned to SSPC SP 11 shall be cleaned of dust and abrasive particles by brush, vacuum cleaner, and/or blown down with clean, dry, compressed air, and given the first coat of paint.

Coating failure on the bridge has occurred at the crevices and joints of built-up members; such areas are difficult to clean. Meticulous surface preparation to the specified grade in these difficult areas is a contract requirement and will be strictly enforced. The blaster shall "dwell" on those excessively corroded areas which require special attention. Gratings shall be removed as necessary to properly clean and paint supporting steel. All steel members of the Bridge will require extensive blast cleaning to remove all of the existing paint and corrosion to achieve the specified grade of surface preparation. A blast cleaning system shall be established by the Contractor to mobilize at and properly blast clean all locations on the Bridge. Blast cleaning operations shall be so programmed that grit, dust or other contaminants from the cleaning process do not fall on wet, newly painted surfaces.

3.1.4.1 Removal of Pack Rust

Remove all rust on any surface and loose pack rust that has formed between structural members. Unless otherwise directed by the Contracting Officer, remove tight pack rust until the highest point is a minimum of 1/8 inch below the surface of the surrounding steel. Pay particular attention to the crevice areas at steel connection points. Exercise extreme care to avoid any nicking or gouging of the steel during removal. Nicks and gouges are cause for a suspension of activities until appropriate adjustments are made to prevent a reoccurrence. Damage to steel shall be repaired by the Contractor as directed by the Contracting Officer.

3.1.4.2 Steel Defects

a. Immediately report to the Contracting Officer any cracks or significant metal loss found in the structural steel.

b. Provide the Contracting Officer with access to the suspect areas as needed to conduct an investigation.

c. After blast cleaning, surface imperfections which remain (e.g. slivers, scabs, laminations, etc.) shall be removed by grinding to produce an acceptable surface and the surface profile of the repair area restored to an SSPC SP 11 condition.

3.1.5 SSPC-SP 11 Power Tool Cleaning to Bare Metal

a. Use power assisted hand tools such as needle guns, Roto peening equipment, or similar tools to thoroughly clean all the limited areas of the Bridge, which are not practical to access with dry blast-cleaning equipment. Comply with the requirements of SSPC SP 11 to remove all visible oil, grease, dirt, dust, mill scale, rust, paint, oxide, corrosion

products, and other foreign matter. Slight residues of rust and paint may be left in the lower portions of pits if the original surface is pitted.

b. Provide a minimum surface profile of 1 mil on all power tool prepared surfaces. Comply with deeper profile requirements if specified by the Contracting Officer or the coating manufacturer.

c. SSPC-VIS 3 may be used as an aid in determining the quality of cleaning.

3.1.6 Galvanized Metal Form Pans and Suicide Deterring Fence

The metal form pans under the bridge deck and the suicide deterring fence have not been painted with lead paint. The form pans and suicide deterring fence shall be cleaned of dirt and any corrosion and given two coats of topcoat paint as specified. When cleaning galvanized metal form pans at the underside of the bridge deck and the suicide deterring fence, exercise caution to prevent damage to the zinc surfaces under the existing paint. Surface preparation of these surfaces shall be accomplished in accordance with SSPC SP 1, SSPC SP 2 and/or SSPC SP 7, as necessary to remove all rust and corrosion. When prepairing the guard rail for painting, sheiding shall placed be between the suicide deterring fence and the guard rail members to minimize the damage to the suicide deterring fence. Where zinc surfaces are exposed by surface preparation, spot prime the exposed zinc with a one inch overlap using MC-Zinc and apply ~~one coat~~two coats of top coat material overall.

~~3.2.2 Surfaces Previously Painted with Coal Tar Epoxy Paint System~~

~~Surfaces listed in paragraph "Coal Tar Epoxy" and other coal tar epoxy painted surfaces that may be encountered shall be cleaned and painted by the following method:~~

~~(1) All paint failure areas including bare metal areas, rust spots, paint blisters, areas of underfilm corrosion and any surface areas where the existing paint system has otherwise thinned out or failed shall be cleaned as specified in paragraph "Ferrous Surfaces" above, except that it is not necessary to remove existing tightly adhered paint in good condition.~~

~~(2) Intact paint areas surrounding the bare metal areas for a minimum distance of three inches in all directions shall be brush-off blast cleaned or power tool cleaned. The blast stream or cleaning tool shall dwell upon these intact paint areas for a time sufficient to remove surface soils and roughen the paint surface. The areas thus cleaned shall be painted with Coal Tar Eopoxy as specified in paragraph "Paint Systems and Painting Schedule", SYSTEM NO. 6.~~

3.2 PAINT APPLICATION

3.2.1 Environmental Protection

a. Methods shall be devised for protection of persons and property in inhabited areas adjacent to the bridge from the effects of wind blown paint droplets.

b. Every precaution practicable shall be taken to prevent paint drips and paint droplets from falling from the bridge. Should such debris or any other constructions materials fall from the bridge inadvertently, prompt corrective actions shall be taken to prevent further occurrences

and the fallen items shall be secured and removed.

c. Methods of physical containment shall be used including suspended platforms and heavy tarpaulins. The containment structure constructed to control lead contaminated paint debris may be used for spray painting operations when clear of dust.

d. Programming of painting operations to utilize wind speed and direction to blow paint droplets away from inhabited areas and by curtailing or changing painting operations during advertise wind speed or direction conditions shall be used. Information on average wind conditions at the site may be obtained from the nearest U.S. National Weather Service Office.

(e) High winds at the site will carry paint droplets long distances. Application of paint by brush and other corrective measures shall be used in lieu of spray painting when wind or other conditions cause paint contamination of private property or items not to be painted.

3.2.2 General

The finished coating shall be free from holidays, pinholes, bubbles, runs, drops, ridges, waves, laps, excessive or unsightly brush marks, and variations in color, texture, and gloss. Application of initial or subsequent coatings shall not commence until the Contracting Officer has verified that atmospheric conditions and the surfaces to be coated are satisfactory. Each paint coat shall be applied in a manner that will produce an even, continuous film of uniform thickness. Edges, corners, crevices, seams, joints, welds, rivets, corrosion pits, and other surface irregularities shall receive special attention to ensure that they receive an adequate thickness of paint. Spray equipment shall be equipped with traps and separators and where appropriate, mechanical agitators, pressure gauges, pressure regulators, and screens or filters. Air caps, nozzles, and needles shall be as recommended by the spray equipment manufacturer for the material being applied. Airless-type spray equipment may be used only on broad, flat, or otherwise simply configured surfaces, except that it may be employed for general painting if the spray gun is equipped with dual or adjustable tips of proper types and orifice sizes.

3.2.3 Mixing and Thinning

Paints shall be thoroughly mixed, strained where necessary, and kept at a uniform composition and consistency during application. Paste or dry-powder pigments specified to be added at the time of use shall, with the aid of powered stirrers, be incorporated into the vehicle or base paint in a manner that will produce a smooth, homogeneous mixture free of lumps and dry particles. Where necessary to suit conditions of the surface temperature, weather, and method of application, the paint may be thinned immediately prior to use. Thinning shall generally be limited to the addition of not more than 1 pint per gallon of the proper thinner; this general limitation shall not apply when more specific thinning instructions are provided. Paint that has been stored at low temperature, shall be brought up to at least 70 degrees F before being mixed and thinned. Paint that has deteriorated in any manner to a degree that it cannot be restored to essentially its original condition by customary field-mixing methods shall not be used and shall be removed from the project site. Paint and thinner that is more than 1 year old shall be resampled and resubmitted for testing to determine its suitability for application.

3.2.4 Atmospheric and Surface Conditions

Paint shall be applied only to surfaces that are above the dew point temperature and that are completely free of moisture as determined by sight and touch. Paint shall not be applied to surfaces upon which there is detectable frost or ice. Except as otherwise specified, the temperature of the surfaces to be painted and of air in contact therewith shall be not less than 35 degrees F during paint application nor shall paint be applied if the surfaces can be expected to drop to 32 degrees F or lower before the film has dried to a reasonably firm condition. During periods of inclement weather, painting may be continued by enclosing the surfaces and applying artificial heat, provided the minimum temperatures and surface dryness requirements prescribed previously are maintained. Paint shall not be applied to surfaces heated by direct sunlight or other sources to temperatures that will cause detrimental blistering, pinholing, or porosity of the film. Remove and replace any paint that is exposed to unacceptable conditions (e.g. rain) prior to adequate curing.

3.2.5 Time Between Surface Preparation and Painting

Surfaces that have been cleaned and/or otherwise prepared for painting shall be primed as soon as practicable after such preparation has been completed but, in any event, prior to any deterioration of the prepared surface.

3.2.6 Method of Paint Application

Unless otherwise specified, paint shall be applied by brush or spray to ferrous and nonferrous metal surfaces. Special attention shall be directed toward ensuring adequate coverage of edges, corners, crevices, pits, rivets, bolts, welds, and similar surface irregularities. Other methods of application to metal surfaces shall be subject to the specific approval of the Contracting Officer. Whenever application of paint by a specific method to a surface is permitted or directed, all areas inaccessible to that method shall be coated by alternate means. In order to obtain complete coverage with the specified mil thickness of paint on areas difficult to reach by spray or brush, daubers or sheepskins shall be used. These shall be dipped in paint and then drawn through narrow spaces or daubed into spots difficult to reach.

3.2.7 Coverage and Film Thickness

Film thickness or spreading rates shall be as specified hereinafter. Where no spreading rate is specified, the paint shall be applied at a rate normal for the type of material being used. In any event, the combined coats of a specified paint system shall completely hide base surface and the finish coats shall completely hide undercoats of dissimilar color.

3.2.7.1 Measurement on Ferrous Metal

Where dry film thickness requirements are specified for coatings on ferrous surfaces, measurements shall be made with a gage qualified in accordance with paragraph Coating Thickness Gage Qualification. They shall be calibrated and used in accordance with ASTM D 1186. They shall be calibrated using plastic shims with metal practically identical in composition and surface preparation to that being coated, and of substantially the same thickness (except that for measurements on metal thicker than 1/4 inch, the instrument may be calibrated on metal with a minimum thickness of 1/4 inch). Frequency of measurements shall be as

recommended for field measurements by ASTM D 1186 and reported as the mean for each spot determination. The instruments shall be calibrated or calibration verified prior to, during, and after each use.

3.2.8 Progress of Painting Work

Where field painting on any type of surface has commenced, the complete painting operation, including priming and finishing coats, on that portion of the work shall be completed as soon as practicable, without prolonged delays. Sufficient time shall elapse between successive coats to permit them to dry properly for recoating, and this period shall be modified as necessary to suit adverse weather conditions. Paint shall be considered dry for recoating when it feels firm, does not deform or feel sticky under moderate pressure of the finger, and the application of another coat of paint does not cause film irregularities such as lifting or loss of adhesion of the undercoat. All coats of all painted surfaces shall be unscarred and completely integral at the time of application of succeeding coats. At the time of application of each successive coat, undercoats shall be cleaned of dust, grease, overspray, or foreign matter by means of airblast, solvent cleaning, or other suitable means. Cement and mortar deposits on painted steel surfaces, not satisfactorily removed by ordinary cleaning methods, shall be brush-off blast cleaned and completely repainted as required.

3.2.9 Protection of Painted Surfaces

Where shelter and/or heat are provided for painted surfaces during inclement weather, such protective measures shall be maintained until the paint film has dried and discontinuance of the measures is authorized. Items that have been painted shall not be handled, worked on, or otherwise disturbed until the paint coat is fully dry and hard.

~~3.2.12 Coal Tar-Epoxy (Black) Paint (Formula C-200a)~~

~~3.2.12.1 Mixing~~

~~Component B shall be added to previously stirred Component A and thoroughly mixed together with a heavy-duty mechanical stirrer just prior to use. The use of not more than 1 pint of xylene thinner per 1 gallon of paint will be permitted to improve application properties and extend pot life. The pot life of the mixed paint, extended by permissible thinning, may vary from 2 hours in very warm weather to 5 or more hours in cool weather. Pot life in warm weather may be extended by precooling the components prior to mixing; cooling the mixed material; and/or by slow, continuous stirring during the application period. The mixed material shall be applied before unreasonable increases in viscosity take place.~~

~~3.2.12.2 Application~~

~~Spray guns shall be of the conventional type equipped with a fluid tip of approximately 0.09 inch in diameter and external atomization, seven-hole air cap. Material shall be supplied to the spray gun from a bottom withdrawal pot or by means of a fluid pump; hose shall be 1/2 inch in diameter. Atomization air pressure shall not be less than 80 psi. High-pressure airless spray equipment may be used only on broad, simply configured surfaces. Brush application shall be with a stiff-bristled tool heavily laden with material and wielded in a manner to spread the coating smoothly and quickly without excessive brushing. The coverage rate of the material is approximately 110 square feet per gallon per coat to obtain 20~~

~~mils (dry thickness) in a two-coat system. The paint shall flow together and provide a coherent, pinhole-free film. The direction of the spray passes (or finish strokes if brushed) of the second coat shall be at right angles to those of the first where practicable.~~

~~3.2.12.3 Subsequent Coats~~

~~Except at the high temperatures discussed later in this paragraph, the drying time between coal tar-epoxy coats shall not be more than 72 hours, and application of a subsequent coat as soon as the undercoat is reasonably firm is strongly encouraged. Where the temperature for substrate or coating surfaces during application or curing exceeds or can be expected to exceed 125 degrees F as the result of direct exposure to sunlight, the surfaces shall be shaded by overhead cover or the interval between coats shall be reduced as may be found necessary to avoid poor intercoat adhesion. Here, poor intercoat adhesion is defined as the inability of two or more dried coats of coal tar-epoxy paint to resist delamination when tested aggressively with a sharp knife. Under the most extreme conditions involving high ambient temperatures and sun-exposed surfaces, the drying time between coats shall not exceed 10 hours, and the reduction of this interval to a few hours or less is strongly encouraged. Where the curing time of a coal tar-epoxy undercoat exceeds 72 hours of curing at normal temperatures, 10 hours at extreme conditions, or where the undercoat develops a heavy blush, it shall be given one of the following treatments before the subsequent coat is applied:~~

~~a. Etch the coating surface lightly by brush-off blasting, using fine sand, low air pressure, and a nozzle-to-surface distance of approximately 3 feet.~~

~~b. Remove the blush and/or soften the surface of the coating by wiping it with cloths dampened with 1-methyl-2-pyrrolidone. The solvents may be applied to the surface by fog spraying followed by wiping, but any puddles of solvent must be mopped up immediately after they form. The subsequent coat shall be applied in not less than 15 minutes or more than 3 hours after the solvent treatment.~~

~~3.2.12.4 Ambient Temperature~~

~~Coal tar-epoxy paint shall not be applied when the receiving surface or the ambient air is below 50 degrees F nor unless it can be reasonably anticipated that the average ambient temperature will be 50 degrees F or higher for the 5-day period subsequent to the application of any coat.~~

~~3.2.12.5 Safety~~

~~In addition to the safety provisions in paragraph SAFETY AND HEALTH PROVISIONS, other workmen as well as painters shall avoid inhaling atomized particles of coal tar-epoxy paint and contact of the paint with the skin.~~

3.3 PAINT SYSTEMS APPLICATION

3.3.1 Moisture-Cure Urethane Paint, System No. 1

3.3.1.1 Recoat Times

a. Apply each coat only after the previous coat has been allowed to dry as required by the manufacturer's written instructions, but as soon as possible to minimize the length of time that the coating is exposed to dust

and contamination.

b. Do not allow any coat to remain exposed for longer than 14 days prior to overcoating.

c. If a coat is exposed over the winter months prior to the application of the next coat, or the applied coat(s) exceed the manufacturer's maximum recoat times or 14 days for any reason, remove and replace the coating. As an alternative, provide written instructions from the coating manufacturer for the specialized preparation that can be undertaken (e.g. scarifying the surface) to properly prepare the surface to receive the next coat. The specialized steps can be undertaken only if approved by the Contracting Officer. Perform the specialized cleaning or removal and replacement of the coatings at no additional cost to the Government.

3.3.1.2 Coverage, Continuity, and Stripe Coating

a. Apply each coat in a workmanlike manner to assure thorough wetting of the substrate or underlying coat, and to achieve a smooth, streamline surface relatively free of dryspray, overspray, and orange peel. Shadow-through, pinholes, bubbles, skips, misses, lap marks between applications, or other visible discontinuities in any coat are unacceptable. Runs or sags may be brushed out while the material remains wet.

Any areas of paint found to be bubbled due to excessive coating thickness shall be reblaseted and the defective coat(s) removed prior to applying any succeeding coats.

Coating dry film thickness for Paint System 1 shall be as follows:

Primer: Single-component moisture-cure zinc-rich polyurethane	3-4 mils DFT
Primer #2: Single-component moisture-cure polyurethane penetrating sealer stripe coat	1.5-3.0 mils DFT
Intermediate: Single-component moisture-cure aromatic polyurethane with micaceous iron oxide	3-4 mils DFT
Finish: Single-component moisture-cure aliphatic polyurethane with micaceous iron oxide	2-3 mils DFT

b. Remove dryspray and overspray (e.g. by sanding) prior to the application of the next coat. When present on the finish, remove as directed by the Contracting Officer and apply another coat of finish to the area. Remove all other defective coating to sound material and reapply.

c. Thoroughly coat all surfaces with special attention to hard-to-reach areas, and irregular surfaces such as lacing bars and rivets. When coating configurations such as bolts, apply the material from multiple directions to assure complete coverage.

d. Apply a stripe coat of the polyurethane penetrating sealer by brush, roll or spray to all edges, and by brush to all welds, crevices, rivets, bolt nuts and threads, bolt heads, and other surface irregularities prior to the application of the full intermediate coat. Apply the stripe coat to ensure complete and thorough coverage, and to build up the thickness of the

coating on the irregular surfaces. Due to the complexity of the Bridge structure, the Contractor may, at its option, apply the polyurethane penetrating sealer by spray to all surfaces of the Bridge as a full sealer coat, at no additional cost to the Government.

~~3.3.4 Caulking~~

~~a. Caulking is required to seal all gaps between abutting surfaces over 0.03 (1/32) inch wide and areas of pack rust that cannot be removed.~~

~~b. Identify the caulking materials to be used in the pre-construction project submittals. Use only caulking materials that are acceptable to the paint manufacturer and the Contracting Officer.~~

~~c. Apply caulking after the application of the prime coat and prior to the application of the intermediate coat.~~

~~d. Mix and install the caulking in strict accordance with the caulking manufacturer's instructions.~~

~~3.3.12 Coal Tar Epoxy, System No. 6~~

~~Paint shall be spray or brush applied with a minimum of two coats to provide a minimum total thickness at any point of 16 mils. The specified film thickness shall be attained in any event, and any additional (beyond two) coats needed to attain specified thickness shall be applied at no additional cost to the Government.~~

3.3.2 Protection of Nonpainted Items and Cleanup

Walls, equipment, fixtures and all other items in the vicinity of the surfaces being painted shall be maintained free from damage by paint or painting activities. Paint spillage and painting activity damage shall be promptly repaired.

3.4 INSPECTION

The Contractor shall inspect, document, and report all work phases and operations on a daily basis. As a minimum the daily report shall contain the following:

a. Inspections performed, including the area of the structure involved and the results of the inspection.

b. Surface preparation operations performed, including the area of the structure involved, the mode of preparation, the kinds of solvent, abrasive, or power tools employed, and whether contract requirements were met.

c. Thinning operations performed, including thinners used, batch numbers, and thinner/paint volume ratios.

d. Application operations performed, including the area of the structure involved, mode of application employed, ambient temperature, substrate temperature, dew point, relative humidity, type of paint with batch numbers, elapsed time between surface preparation and application, elapsed time for recoat, condition of underlying coat, number of coats applied, and if specified, measured dry film thickness or spreading rate of each new coating.

3.5 FINAL CLEANING AND CLEARANCE TESTING FOR LEAD CONTAMINANTS

All facilities and surfaces within or directly adjacent to the regulated area shall be cleaned and decontaminated using phosphate detergents and HEPA vacuums as necessary to provide surfaces that are clean of residual lead dust. Clearance testing shall be performed. A sufficient number of wipe tests shall be performed to document the level of residual lead contamination. No surface shall have greater than 8,000 micrograms of lead per square foot.

3.6 PAINTING SCHEDULES

SYSTEM NO. 1

Items or surfaces to be coated: All existing ferrous metal surfaces comprising the bridge structure, except as otherwise specified.

Surface preparation shall be as specified in article "CLEANING AND PREPARATION OF SURFACES TO BE PAINTED."

First Coat: Single-component moisture-cure zinc-rich polyurethane primer.

Second Coat: Single-component moisture-cure polyurethane penetrating sealer primer stripe coat (See Article "Coverage, Continuity, and Stripe Coating."

Third Coat: Single-component moisture-cure aromatic polyurethane with micaceous iron oxide (MIO) intermediate.

Forth Coat: Single-component moisture-cure aliphatic polyurethane with micaceous iron oxide (MIO) finish.

SYSTEM NO. 1A

Items or surfaces to be coated: Galvanized metal form pans at underside of bridge deck and suicide fence and accessories.

Surface preparation shall be as specified in article "CLEANING AND PREPARATION OF SURFACES TO BE PAINTED."

First Coat: Single-component moisture-cure aliphatic polyurethane with micaceous iron oxide (MIO) finish.

Second Coat: Single-component moisture-cure aliphatic polyurethane with micaceous iron oxide (MIO) finish coat.

~~SYSTEM NO. 6~~

~~Items or surfaces to be coated: All surfaces previously coated with coal~~

~~tar epoxy.~~

~~Surface preparation shall be as specified in article "CLEANING AND PREPARATION OF SURFACES TO BE PAINTED, subarticle "Coal Tar Epoxy."~~

~~First Coat: Coal tar epoxy C200a.~~

~~Second Coat: Coal tar epoxy C200a (as needed).~~

~~Third Coat: Single-component moisture-cure aliphatic polyurethane with micaceous iron oxide (MIO) finish.~~

~~Recoat window shall be the same as between successive coats of C-200a.~~

-- End of Section --